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OBSERVATIONS ON THE SIZE OF THE BRAIN IN
VARIOUS RACES AND FAMILIES OF MAN.

BY SAMUEL GEORGE MORTON, M. D.

[From the Proceedings of the Academy of Natural Sciences, October, 1849.]

I have great pleasure in submitting to the Academy the results of the internal measurements of six hundred and twenty-three human crania, made with a view to ascertain the relative size of the brain in various races and families of Man.

These measurements have been made by the process invented by my friend Mr. J. S. Phillips, and described in my *Crania Americana*, p. 253, merely substituting leaden shot, one-eighth of an inch in diameter, in place of the white mustard-seed originally used. I thus obtain the *absolute capacity of the cranium, or bulk of the brain, in cubic inches*; and the results are annexed in all those instances in which I have had leisure to put this revised mode of measurement in practice. I have restricted it, at least for the purpose of my inferential conclusions, to the crania of persons of sixteen years of age and upwards, at which period the brain is believed to possess the adult size. Under this age, the capacity-measurement has only been resorted to for the purpose of collateral comparison; nor can I avoid expressing my satisfaction at the singular accuracy of this method, since a skull of an hundred cubic inches, if measured any number of times with reasonable care, will not vary a single cubic inch.

All these measurements have been made with my own hands. I at one time employed a person to assist me; but having detected some errors in his measurements, I have been at the pains to revise all that part of the series that had not been previously measured by myself. I can now, therefore, vouch for the accuracy of these multitudinous data, which I cannot but regard as a novel and important contribution to Ethnological science.

I am now engaged in a memoir which will embrace in detail the conclusions that result from these data; and meanwhile I submit the following tabular view of the prominent facts.

TABLE,

Showing the Size of the Brain in cubic inches, as obtained from the internal measurement of 623 Crania of various Races and Families of Man.

RACES AND FAMILIES.		No. of Skulls.	Largest I. C.	Smallest I. C.	Mean.	Mean.
MODERN CAUCASIAN GROUP.						
TEUTONIC FAMILY.						
	<i>Germans,</i>	18	114	70	90	} 92
	<i>English,</i>	5	105	91	96	
	<i>Anglo-Americans,</i>	7	97	82	90	
PELAGIC FAMILY.						
	<i>Persians,</i>	} 10	94	75	84	
	<i>Armenians,</i>					
	<i>Circassians,</i>					
CELTIC FAMILY.						
	<i>Native Irish,</i>	} 6	97	78	87	
INDOSTANIC FAMILY.						
	<i>Bengalees, &c.</i>	} 32	91	67	80	
SEMITIC FAMILY.						
	<i>Arabs,</i>	} 3	98	84	89	
NILOTIC FAMILY.						
	<i>Fellahs,</i>	} 17	96	66	80	
ANCIENT CAUCASIAN GROUP.						
From the Catacombs.	PELAGIC FAMILY.	} 18	97	74	88	
	<i>Græco-Egyptians,</i>					
	NILOTIC FAMILY.	} 55	96	68	80	
	<i>Egyptians,</i>					
MONGOLIAN GROUP.						
CHINESE FAMILY.						
		6	91	70	82	
MALAY GROUP.						
MALAYAN FAMILY.						
		20	97	68	86	} 85
POLYNESIAN FAMILY.		3	84	82	83	
AMERICAN GROUP.						
TOLTECAN FAMILY.						
	<i>Peruvians,</i>	} 155	101	58	75	
	<i>Mexicans,</i>					
BARBAROUS TRIBES.						
	<i>Iroquois,</i>	} 161	104	70	84	} 79
	<i>Lenapé,</i>					
	<i>Cherokee,</i>					
	<i>Shoshoné, &c.</i>					
NEGRO GROUP.						
NATIVE AFRICAN FAMILY.						
		62	99	65	83	} 83
AMERICAN-BORN NEGROES.		12	89	73	82	
HOTTENTOT FAMILY.		3	83	68	75	
ALFORIAN FAMILY.						
	<i>Australians,</i>	} 8	83	63	75	

The measurements of children, idiots and mixed races are omitted from this table, excepting only in the instance of the Fellahs of Egypt, who, however, are a blended stock of two *Caucasian* nations,—the true Egyptian and the intrusive Arab, in which the characteristics of the former greatly predominate.

No mean has been taken of the Caucasian race* collectively, because of the very great preponderance of Hindu, Egyptian and Fellaah skulls over those of the Germanic, Pelasgic and Celtic families. Nor could any just *collective* comparison be instituted between the Caucasian and Negro groups in such a table, unless the small-brained people of the latter division (Hottentots, Bushmen and Australians) were proportionate in number to the Hindoos, Egyptians and Fellahs of the other group. Such a computation, were it practicable, would probably reduce the Caucasian average to about 87 cubic inches, and the Negro to 78 at most, perhaps even to 75, and thus confirmatively establish the difference of at least nine cubic inches between the mean of the two races.*

Large as this collection already is, a glance at the Table will show that it is very deficient in some divisions of the human family. For example, it contains no crania of the Eskimaux, Fuegians, Californians or Brazilians. The skulls of the great divisions of the Caucasian and Mongolian races are also too few for satisfactory comparison, and the Slavonic and Tchudic (Finnish) nations, together with the Mongol tribes of Northern Asia and China, are among the especial *desiderata* of this collection.

Among the facts elicited by this investigation are the following :

1. The Teutonic or German race, embracing, as it does, the Anglo-Saxons, Anglo-Americans, Anglo-Irish, &c., possesses the largest brain of any other people.
2. The nations having the smallest heads, are the ancient Peruvians and Australians.
3. The Barbarous tribes of America possess a much larger brain than the demi-civilized Peruvians or Mexicans.

* It is necessary to explain what is here meant by the word *race*. Further researches into Ethnographic affinities will probably demonstrate that what are now termed the *five races* of men, would be more appropriately called *groups*; that each of these groups is again divisible into a greater or smaller number of primary races, each of which has expanded from an aboriginal nucleus or centre. Thus I conceive that there were several centres for the American group of races, of which the highest in the scale are the Toltec nations, the lowest the Fuegians. Nor does this view conflict with the general principle, that all these nations and tribes have had, as I have elsewhere expressed it, a common origin; inasmuch as by this term is only meant an indigenous relation to the country they inhabit, and that collective identity of physical traits, mental and moral endowments, language, &c., which characterize all the American races. The same remarks are applicable to all the other human races; but in the present infant state of Ethnographic science, the designation of these primitive centres is a task of equal delicacy and difficulty. I may here observe, that whenever I have ventured an opinion on this question, it has been in favor of the doctrine of *primeval diversities* among men,—an original adaptation of the several races to those varied circumstances of climate and locality, which, while congenial to the one are destructive to the other; and subsequent investigations have confirmed me in these views. See *Crania Americana*, p. 3; *Crania Ægyptiaca*, p. 37; *Distinctive Characteristics of the Aboriginal Race of America*, p. 36; *Silliman's American Journal of Science and the Arts*, 1847; and my *Letter to J. R. Bartlett, Esq.*, in Vol. 2 of the Transactions of the Ethnological Society of New York.

4. The ancient Egyptians, whose civilization ante-dates that of all other people, and whose country has been justly called "the cradle of the arts and sciences," have the least-sized brain of any Caucasian nation, excepting the Hindoos; for the very few Semitic heads will hardly permit them to be admitted into the comparison.

5. The Negro brain is nine cubic inches less than the Teutonic, and three cubic inches larger than the ancient Egyptian.

6. The largest brain in the series is that of a Dutch gentleman, and gives 114 cubic inches; the smallest head is an old Peruvian, of 58 cubic inches; and the difference between these two extremes is no less than 56 cubic inches.

7. The brain of the Australian and Hottentot falls far below the Negro, and measures precisely the same as the ancient Peruvian.

8. This extended series of measurements fully confirms the fact stated by me in the *Crania Americana*, that the various artificial modes of distorting the cranium, occasion no diminution of its internal capacity, and consequently do not affect the size of the brain.

Among the facts elicited by this investigation are the following:

1. The Teutonic or German race, embracing as it does the Anglo-Americans, English, Scotch, Irish, possesses the largest brain of any other people.

2. The nations having the smallest heads are the ancient Peruvians and Australians.

3. The European race of America possess a much larger brain than the American Indians.

4. The American Indians of the same tribe possess a much larger brain than the European Indians of the same tribe.

It is necessary to explain what is here meant by the word race. Further remarks on Ethnographic subjects will probably demonstrate that what are now termed the race of man, would be more appropriately called groups; that each of these groups is again divisible into a greater or smaller number of primary races, each of which has expanded from an original nucleus or center. I must confess that there were several centers in the American group of races, the most important in the states are the Toltecan, Aztec, and the Iroquois. Now does this view coincide with the general opinion that all these nations and tribes have taken I have elsewhere expressed in a common origin inasmuch as by this term is only meant an independent station to the country that formed, and that respective similarity of physical traits, mental and moral characters, and the same features are applicable to all the other nations; but in the present state of ethnographic science, the designation of these primitive centers is a task of equal difficulty and doubtfully. I may here observe that whenever I have ventured an opinion on this question, it has been in favor of the doctrine of separate diversities among men—an original adaptation of the several races to those varied circumstances of climate and locality, which were congenial to the one are destructive to the other; and subsequent investigations have confirmed me in these views. *See Crania Americana*, p. 3; *Crania Americana*, p. 37; *Dissertationes Craniologicae* of the Rev. John Hall, M.D., in the *Journal of the American Medical Association*, Vol. 1, 1817; and in the *Journal of the Transactions of the Ethnological Society*, Vol. 1, 1817.